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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,509	07/18/2006	Hans-Joachim Timpe	90061/JLT	4643
1333 7590 07/25/2007 EASTMAN KODAK COMPANY PATENT LEGAL STAFF 343 STATE STREET ROCHESTER, NY 14650-2201			EXAMINER EOFF, ANCA	
			ART UNIT 1753	PAPER NUMBER
			MAIL DATE 07/25/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/586,509

Applicant(s)

TIMPE ET AL.

Examiner

Anca Eoff

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8, 10-19 and 22-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5, 6, 8, 10-19 and 22-25 is/are rejected.
- 7) ☒ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 07/18/2006.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Status***

1. Claims 1-6, 8, 10-19 and 22-25 are pending in the application.  
Claims 7, 9 and 20-21 are canceled.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 5-6, 8, 10-12, 17-19 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Timpe et al. (US Pg-Pub 2002/0197564) in view of Kimura (JP 11-116900).

With regard to claim 1, Timpe et al. disclose a printing plate precursor comprising a substrate and a layer of infrared-sensitive composition (par.0150), equivalent to the radiation-sensitive coating of the instant application.

The substrate comprises a natural or synthetic support, preferably one that has been surface treated (par.0151).

The infrared-sensitive composition comprises:

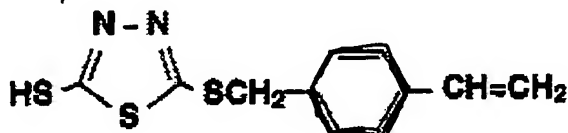
- at least one polymeric binder (par.0020), said polymeric binder being soluble or swellable in water or weakly alkaline aqueous solutions, which are commonly used as developers for lithographic printing plates (par.0142);

- a initiator system comprising at least one compound capable of absorbing infrared radiation (par.0009-0010) and at least one compound capable of producing free radicals (par.0011).

Timpe et al. disclose that the infrared-sensitive composition comprises free-radical polymerizable monomers (par.0138-0141) but fail to disclose that the radical polymerizable compounds have the structure of formula (I) of the instant application.

Kimura discloses a composition comprising a radically polymerizable mercapthiadiazole derivative, a radically polymerizable monomer, such as (meth)acrylate and a polymerization initiator (abstract).

Kimura discloses a mercapthiadiazole derivative, such as the compound of formula (1) :



(1) (par.0019)

The compound of formula (1) meets the limitation for the compound of formula (I) of the instant application, when Z is a heterocyclic spacer, Z<sup>1</sup> is Z<sup>3</sup>-S-(CR<sup>2a</sup>R<sup>2b</sup>)<sub>c</sub>-arylene-, Z<sup>3</sup> is a single bond, c is 1, R<sup>2a</sup>, R<sup>2b</sup>, R<sup>1a</sup>, R<sup>1b</sup>, R<sup>1c</sup> are hydrogen atoms.

The compound of formula (1) is preferred for its adhesive strength in the composition of Kimura (par.0023-0025).

The composition comprising the compound of formula (1) has sufficient adhesion property without pre-treating beforehand a metal, durable properties and long-term

stability (par.0007) and it is available in many fields, such as electronic ingredients, precision instruments (par.0001).

Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention of include the mercaptothiadizole derivatives of Kimura in the infrared-sensitive composition for printing plate precursors of Timpe et al., in order to take advantage of the good adhesion properties and long-term stability of the mercaptothiadizole derivatives monomers (Kimura, par.0007).

With regard to claim 2, the compound of formula (1) above meets the limitations of claim 2 where  $R^{1a}$ ,  $R^{1b}$ ,  $R^{1c}$ ,  $R^{2a}$  and  $R^{2b}$  are all hydrogen atoms,  $Z^1$  is a single bond, Z is a 1,3,4-thiadiazole-2,5-diyl group, c is 1.

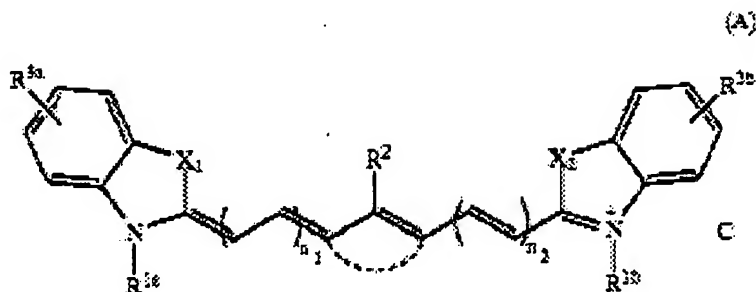
With regard to claim 5, the compound of formula (1) above is 2-thio-(4-ethenyl) benzyl-5-mercapto-1,3,4-thiadiazole.

With regard to claim 6, Timpe et al. disclose that the infrared-sensitive composition comprises free-radical polymerizable monomers without SH groups, such as derivatives of acrylic acid, methacrylic acid, itaconic acid, crotonic acid, isocrotonic acid, maleic acid and fumaric acid (par.00138).

With regard to claim 8, Timpe et al. further disclose that the infrared-sensitive composition comprises an initiator system, said initiator system comprising:

- at least one compound capable of absorbing infrared radiation (par.0010 and par.0037), and
- at least one compound capable of producing free radical, the compound selected from polyhaloalkyl-substituted compounds (par.0011, par.0062).

With regard to claim 10, Timpe et al. disclose that the infrared absorber is a cyanine dye of formula (A):



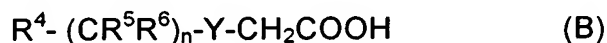
(par.0038).

This compound is identical with the compound of formula (V) of the instant application, where  $R^{20}$  is  $R^{3a}$ ,  $R^{3b}$  (defined in par.0043),  $D^3$  is  $X_1$ ,  $X_2$  (defined in par.0040),  $R^{18}$  is  $R^{1a}$  and  $R^{1b}$  (defined in par.0041),  $R^{19}$  is  $R^2$  (defined in par.0042),  $r$  is  $n_1$ ,  $n_2$  (defined in par.0047).

With regard to claim 11, Timpe et al. further disclose that one of the preferred infrared absorbing dyes for the infrared-sensitive composition is 2-(2-(2-phenylsulfonyl-3-(2-(1,3-dihydro-1,3,5-trimethyl-2H-indol-2-ylidene)-ethylidene)-1-cyclohexen-1-yl))-ethenyl)-1,3,3-trimethyl-3H-indolium chloride (par.0055).

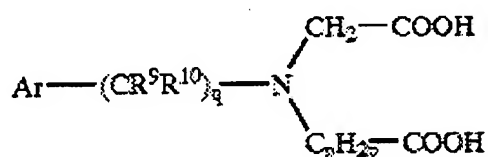
With regard to claim 12, Timpe et al. further disclose that one of the polyhaloalkyl-substituted compounds capable of producing free-radicals is 2-phenyl-4,6-bis(trichloromethyl)-1,3,5-triazine (par.0066).

With regard to claims 17-18, Timpe et al. further disclose that the infrared-sensitive composition further comprises a carboxylic acid of formula (B):



(par.0073), which is identical to the compound of formula (VI) of the instant application, when  $R^{21}$  is  $R^4$  (defined in par.0076),  $R^{22}$  is  $R^5$  (defined in par.0076),  $R^{23}$  is  $R^6$  (defined in par.0076),  $a$  is an integer from 0 to 3 (par.0078),  $A$  is  $Y$  (defined in par.0075).

With regard to claim 19, Timpe et al. further disclose that a preferred group of carboxylic acids are N-arylpolycarboxylic acids as represented by formula (C):



(C) (par.0129).

When  $q=0$ , the compound of formula (C) is identical with the compound of formula (VIa) of the instant application.

With regard to claim 22, Timpe et al. further disclose that a conventional oxygen-impermeable barrier layer is preferably applied over the infrared-sensitive layer (par.0161).

With regard to claim 23, Timpe et al. further discloses that the polymeric binder comprised in the infrared-sensitive layer has an acid number of  $> 70$  mg KOH/g (par.0143).

With regard to claim 24, Timpe et al. further disclose a process comprising the following steps:

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- providing an substrate, which may be treated by techniques known in the art (par.0155-0156);

- applying a layer of infra-red sensitive composition over the substrate using conventional coating or lamination methods (par.0157), said infra-red sensitive composition being equivalent to the radiation sensitive composition of the instant application;

- drying (par.0160);

- applying a conventional oxygen-impermeable barrier layer over the infrared-sensitive layer (par.0161).

With regard to claim 25, Timpe et al. further disclose a process comprising:

- providing a lithographic printing plate precursor, comprising a substrate and the infra-red sensitive composition, equivalent to the radiation sensitive composition of the instant application (par.0150);

- exposing the printing plate precursor with a semiconductor laser or laser diode which emits in a range of 800 to 1100 nm (par.0162), which is the same range where the infrared absorbing compound has its absorption maximum (par.0037);

- developing with an aqueous alkaline developer (par.0164).

4. Claims 1, 13-16 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schulz et al. (US Patent 6,306,555) in view of Zertani et al. (US Patent 5,273,862) and in further view of Kimura (JP 11-116900).

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With regard to claim 1, Schulz et al. disclose a radiation-sensitive composition comprising:

- free-radical polymerizable components, such as ethylenically unsaturated monomers, oligomers or polymers. Suitable materials contain at least one ethylenically unsaturated double bond and are capable of undergoing addition polymerization (column 12, lines 38-43). Mixtures of two or more free-radically polymerisable materials can also be used (column 15, lines 37-38).

- binders, such as homo- and copolymers of acrylates and methacrylates (column 15, line 52);

The acrylates and methacrylates are known in the art as being alkali-soluble polymers/binders, as evidenced in column 8, lines 1-20 of Zertani et al. (US Patent 5,273,862).

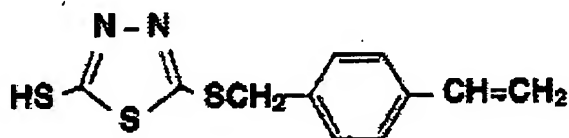
- diaryliodonium salts as photoinitiators (column 1, line 55, column 5, line 15).

Schulz et al. further disclose that the radiation-sensitive composition may be used for production of printing plates that are to be developed with organic solvents or using aqueous-alkaline media (column 30, lines 58-59). The radiation-sensitive composition is suitable as coating material for all kinds of substrates including metal, such as Al, to which a coating is to be applied (column 31, lines 13-19). In this case, the substrate is equivalent to an untreated substrate of the instant application.

Schulz et al. disclose that the radiation sensitive composition comprises free-radical polymerizable monomers but fail to disclose that the radical polymerizable compounds have the structure of formula (I) of the instant application.

Kimura discloses a composition comprising a radically polymerizable mercaptothiadiazole derivative, a radically polymerizable monomer, such as (meth)acrylate and a polymerization initiator (abstract).

Kimura discloses that the adhesive constituent is a mercaptothiadiazole derivative, such as:



(1)

The compound of formula (1) meets the limitation for the compound of formula (I) of the instant application, when Z is a heterocyclic spacer 1,3,4-thiadiazole-2,5-diyl group), Z<sup>1</sup> is Z<sup>3</sup>-S-(CR<sup>2a</sup>R<sup>2b</sup>)<sub>c</sub>-arylene-, Z<sup>3</sup> is a single bond, c is 1, R<sup>2a</sup>, R<sup>2b</sup>, R<sup>1a</sup>, R<sup>1b</sup>, R<sup>1c</sup> are hydrogen atoms.

The compound of formula (1) is preferred for its adhesive strength in the composition of Kimura (par.0023-0025).

The adhesive constituent (compound of formula (1) above) has sufficient adhesion property without pre-treating beforehand a metal, durable properties and long-term stability (par.0007). The adhesive constituent is available in many fields, such as electronic ingredients, precision instruments (par.0001).

Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention of include the mercaptothiadiazole derivatives of Kimura in the infrared-sensitive composition for printing plate precursors of Schulz et al., in order to

take advantage of the good adhesion properties and long-term stability of the mercaptothiadizole derivatives monomers (Kimura, par.0007).

With regard to claim 8, Schulz et al. further disclose that the photoinitiator is an onium salt such as a diaryliodonium salt (column 1, line 55, column 5, line 15).

With regard to claim 13, Schultz et al. further disclose that the radiation-sensitive composition can contain free-radical photoinitiators such as mono- or bisacylphosphine oxides (column 23, line 60-column 24, line 13).

With regard to claim 14-16, Schultz et al. further disclose that the radiation-sensitive composition comprises a photosensitizer, such as 3 acyl-coumarin derivatives (column 28, lines 40-46) and onium salt initiators such as a diaryliodonium salt (column 1, line 55, column 5, line 15).

With regard to claim 24, Schultz et al. disclose a method of comprising the following steps:

- applying the radiation-sensitive composition as a liquid composition, a solution or suspension to the substrate (column 31, lines 24-26);
- removing the solvent by drying (column 31, lines 42-43).

#### ***Allowable Subject Matter***

5. Claims 3 and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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**Conclusion**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anca Eoff whose telephone number is 571-272-9810.

The examiner can normally be reached on Monday-Friday, 6:30 AM-4:00 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AE

CYNTHIA H. KELLY  
SUPERVISORY PATENT EXAMINER  
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